

Water Division • 209-498-1458 1910 East University • Fresno, California 93703-2988

January 31, 1997

Mr. Carl Carlucci Senior Sanitary Engineer State of California Department of Health Services Office of Drinking Water 5545 E. Shields Avenue Fresno, California 93727



Dear Mr. Carlucci:

SUBJECT: SUMMER 1996 LEAD AND COPPER SAMPLING RESULTS

Attached are results of the lead and copper monitoring performed by the City of Fresno during the summer 1996.

The City of Fresno's sample results did not exceed the action level for lead or copper with the 90th percentile samples.

The City of Fresno's water distribution system continues to be significantly below the EPA/DHS action level for both lead and copper. Accordingly, after four consecutive rounds of sampling significantly below the lead and copper action level it is interpreted that the next round of testing be performed in the summer of 1999. Please provide, at your convenience, written confirmation of your concurrence.

Sincerely,

DEPARTMENT OF PUBLIC UTILITIES

hat R. hilly

Martin R. McIntyre

Water Systems Manager

Enclosures

cc: Daniel L. Trafican, Acting Public Utilities Director

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# CITY OF FRESNO WATER DIVISION LEAD AND COPPER RULE COMPLIANCE MONITORING RESULTS OF SUMMER 1996 MONITORING

#### INTRODUCTION

The United States Environmental Protection Agency (USEPA) promulgated National Primary Drinking Water Regulations for lead and copper monitoring on June 7, 1991, (56 FR26460), commonly referred to as the Lead and Copper Rule. This Rule requires that the City of Fresno monitor the water distribution system from the source to the point of delivery at the consumer's tap. Three specific monitoring protocols are included in the Lead and Copper Rule regulations:

- 1) First draw tap water monitoring for lead and copper
- 2) distribution system monitoring for various water quality parameters, and
- 3) source water monitoring for lead, copper, and various water quality parameters.

For the purposes of the Lead and Copper Rule monitoring requirements, the City of Fresno is classified as a large public water supplier. This classification is based upon the City's 102,000 service connections which supply potable water to some 465,000 customers.

#### SAMPLE SITE SELECTION

The City of Fresno utilized the same Tier 1-C sample pool of residences which were selected for the initial year of testing. (Two rounds of sampling and analysis for lead and copper were required for 1993 whereas only one round was required for 1994 and again in 1996.) Eighteen of these residences were not sampled for 1994; two residents had installed water filtration/softening

devices, seven residents could not be contacted, and nine chose not to participate in this sampling. One resident had moved into another dwelling which met all the criteria for a sample site and was thus added to the sample pool. Samples were thus collected for 114 sites in the sample 1994 pool.

Per the direction of the State of California Department of Health Services, Office of Drinking Water (who presently govern the Lead and Copper Rule) the 1996 sampling was reduced to fifty (50) representative sites from within the original sample pool of residences. Sites were randomly selected from each tract in an attempt to maintain equal sample percentages in accordance with previous samplings. Unfortunately not all sites randomly selected for the 1996 sampling chose to participate. The final tract percentages are outlined below.

TRACT	ENTIRE SAMPLE POOL %	1996 SAMPLE POOL $\%$
A	03%	08%
В	34%	30%
C	31%	30%
D	18%	18%
E	12%	14%
F	02%	00%
TOTAL	100%	100%

Exhibit 1 presents the completed Sample Site Justification/Collection Method Certification Form from the Lead and Copper Rule Guidance Manual. The residents performing the tap water sampling are listed in Table 1. Water quality sampling was performed at twenty source locations

and twenty-four distribution system locations. These water quality sample locations are in the same areas as the tap water sample sites and represent the sources and distribution system for all the tap water sample sites in the Tier 1-C sample pool. The locations of the water quality sample sites are listed in Table 2.

#### SAMPLE COLLECTION

The City of Fresno collected their 1996 samples in compliance with the Lead and Copper Rule during the period August 8 - September 8, 1996. Residents collecting tap water samples were given written instructions (Exhibit 2) along with their sample bottle.

#### TAP WATER SAMPLE RESULTS

Table 3 presents the results of the tap water analysis for lead and copper. The table lists the lead and copper concentrations in descending order. This was done in order to determine the 90th percentile levels as required by the Lead and Copper Rule.

#### **Lead Results**

The 90th percentile lead level was determined by multiplying the number of samples taken by 0.9 (50 x 0.9 = 45). The 90th percentile lead level for the City of Fresno samples is 0.0025 mg/L which is below the EPA action level of 0.015 mg/L. The laboratory analysis detection limit for lead is the following: values less than 0.001 mg/L are reported as 0 (zero); values between 0.0010 and 0.0049 are reported as 0.0025 mg/L; values greater than 0.005 mg/L are reported directly.

#### **Copper Results**

The 90th percentile copper level was determined in the same way as for lead. The 90th percentile copper level for the City of Fresno is 0.45 mg/L which is below the EPA action level of 1.3 mg/L. The laboratory analysis detection limit for copper is the following: values less than 0.01 mg/L are reported as 0 (zero); values between 0.010 and 0.049 mg/L are reported as 0.025 mg/L; values greater than 0.05 mg/L are reported directly.

#### DISTRIBUTION SYSTEM AND SOURCE SAMPLE RESULTS

Water quality analysis was performed on twenty-four distribution system locations and twenty points of entry to the distribution system. These results are summarized in Tables 4 and 5.

Both the lead and copper concentrations of the source water at all twenty of the sample locations were 0 (zero) mg/L. The laboratory analysis detection limit for both lead and copper have both been previously explained.

#### FUTURE LEAD AND COPPER MONITORING

Upon completion of this third year of sampling for the Lead and Copper Rule, the City of Fresno's water distribution system continues to be significantly below the EPA/DHS action level. Accordingly, it is interpreted that the next round of testing be resumed in the summer of 1999, to monitor lead and copper for the EPA/DHS.

h:\prd\leadcopr\96result

# SAMPLE SITE JUSTIFICATION/COLLECTION METHOD CERTIFICATION

System's Name:	City of Fresno Water D	ivision	Type: Ex CWS O NTNCWS
Address:	1910 E. University Ave	·•	Size: ≧ >100,000 ☐ 10,001 to 100,000
	Fresno, CA 93703-2988		3,301 to 10,000
			☐ 501 to 3,300
			☐ 101 to 500 ☐ ≤100
Telephone number:	(209) 498-1458		3100
System ID #:	10-007		
Contact Person:	Martin McIntyre		
THE RESULTS OF LE	AD AND COPPER TAP WATER	REAMPLES MUST BE A	TTACHED TO THIS
# of samples required	50	# of samp	les submitted 50
TARGETING CRITERIA	Δ		
	ures with copper pipes with lead	solder installed	
after 1982 or lead of	ipes and/or lead service lines (Ti	er 1)	50
	res with copper pipes with lead		
	ipes and/or lead service lines .[Ti		0
# of buildings containing	g copper pipes with lead solder	installed	
	pes and/or lead service lines (Ti	S. S	0
	copper pipes with lead solder instr rst condition has been exhausted		0
	6	TOTAL	50
Explanation of Tier 2 ar	nd Tier 3 sites (attach additional	pages if necessary)	
LEAD SERVICE LINE	SITES		
	o be drawn from lead service line		- 0
f of samples actually dr	rawn from lead service line sites		0
Difference (explain diffe	rences other than zero)		0
Wethod used to identify Utility Reco	lead service line sites (attach acords, Permit Files, Sen	iditional pages if necessation Personnel and	ry): Retirees, Community Surv
TIE DESILI TO ACUA	777 01141 777 24041	1/000 041101 ED 14170	
DOCUMENT	TER QUALITY PARAMETER (		
of samples required	1960 74-23		samples actually
to be collected	. 20	collected and s	The same of the sa
f of WQP entry point s required to be collect	samples ted 24	# of WQP entry collected and s	y point samples actually submitted 24

## SAMPLE SITE JUSTIFICATION/COLLECTION METHOD CERTIFICATION

#### CERTIFICATION OF COLLECTION METHODS

I certify that:

Each first draw tap sample for lead and copper is one liter in volume and has stood motionless in the plumbing system of each sampling site for at least six hours.

Each first draw sample collected from a single-family residence has been collected from the cold water kitchen tap or bathroom sink tap.

Each first draw sample collected from a non-residential building has been collected at an interior tap from which water is typically drawn for consumption.

Each first-draw sample collected during an annual or triennial monitoring period has been collected in the months of June, July, August or September.

Each resident who volunteered to collect tap water samples from his or her home has been properly instructed by (insert water system's name) \_\_City of Fresno Water Division in the proper methods for collecting lead and copper samples. I do not challenge the accuracy of those sampling results. Enclosed is a copy of the material distributed to residents explaining the proper collection methods, and a list of the residents who performed sampling.

CHANGE OF SAMPLING SITE				28
Original site address: (b) (6)				
New site address: (b) (6)				
(b) (6)				
Distance between sites (approximately)	Togo then and	S	4)	
Distance between sites (approximately):	Less than one	-rourth (1/	4) mile on r	elocation
Targeting Criteria: NEW: Populati	on	OLD: Popu	lation	
Reason for change (attach additional par	ges if necessary):		74	
Population growth, reque				
SIGNATURE That R. T.	tte.			)
Martin R. McIntyre	,	ems Manager	1-31-9	7
NAME	TITLE		DATE	

**TABLE 2 - Water Quality Parameter Sample Locations** 

Type of Location	System Identification Number	Location
Source	W-79	(b) (9)
Source	W-83	
Source	W-86	
Source	W-91	
Source	W-94	
Source	W-97	
Source	W-104	
Source	W-117	
Source	W-119	
Source	W-120	
Source	W-121	
Source	W-133	
Source	W-136	
Source	W-138	
Source	W-140	
Source	W-148	
Source	W-150	
Source	W-154	
Source	W-169	
Source	W-302	
		(b) (6)
Distribution	D-31	(b) (6)
Distribution	D-34	
Distribution	D-36	
Distribution	D-66	
Distribution	D-68	
Distribution	D-69	
Distribution	D-70	
Distribution	D-76	
Distribution	D-79	
Distribution	D-81	
Distribution	D-82	
Distribution	D-116	
Distribution	D-117	
Distribution	D-126	
Distribution	D-128	
Distribution	D-129	
Distribution	D-130	
Distribution	D-133	
Distribution	D-134	
Distribution	D-155	
Distribution	D-156	
Distribution	D-159	
Distribution	D-181	
Distribution	D-202	

#### DIRECTIONS--RESIDENT TAP SAMPLE COLLECTION PROCEDURES

These samples are being collected to determine the contribution of household fixtures and pipes and/or solder to the lead and copper levels in tap water. This sampling effort is required by the State of California, Department of Health Services, and is being accomplished through the cooperation of homeowners and residents. The collection procedure is described in detail below:

- 1. On the day prior to collecting the sample thoroughly clean and remove all debris which may have accumulated inside the aerator of your kitchen tap water faucet. Run the tap for 1-2 minutes after cleaning so that no loose debris will impact sampling process.
- 2. <u>Do not use any water for 6-8 hours on your premises prior to sampling.</u> The Water Division recommends that either early mornings (after awakening) or early evenings (after returning from work) are the best sampling times to ensure that the proper water conditions exist.
- 3. The primary kitchen cold water faucet is to be used for sampling. The sample must be 100% from the cold water side of the tap; it can not be a mixture of water "dialed" from both hot and cold service lines. Place the open sample bottle below the faucet and gently open the cold water tap. Slowly fill the sample bottle to the base of the neck and turn off the water. It should take 45-60 seconds to fill the sample bottle.
- 4. Tightly cap the sample bottle and place in the plastic bag provided. Complete the information requested below and place in the plastic bag with the sample bottle.
- 5. Place the sample outside your home for pick-up by 8:00 AM, Monday August 12th.
- 6. Results from this monitoring effort will be provided to participating customers when reports are generated for the State of California, Department of Health Services.

#### Please call Bill Dunn at 498-4136 if you have any questions regarding these instructions.

TO BE COMPLETED BY RESIDE	NT AND RETURNED W	ITH SAMPLE:
Water was last used:	TIME	DATE
Sample was collected:	TIME	DATE
I have read the above directions and	have taken a tap sample in	accordance with these directions
PRINTED NAME		
ADDRESS		PHONE
TO BE COMPLETED BY WATER	DIVISION EMPLOYEE:	
Sample picked up by	Time	Date
h:\prd\sproj\wq\lead\96sample.wp		

Table 3 - TAP WATER SAMPLE ANALYSIS - SUMMER 1996

Sample	Lead	Lead
No.	Ranking	
110.	nanking	mg/L
10	50	0.009
131	49	0.003
1	48	0.007
2	47	0.0025
3	46	0.0025
26	45	0.0025
36	45	
39	43	0.0025
40	43	0.0025
43		0.0025
50	41	0.0025
	40	0.0025
55	39	0.0025
57	38	0.0025
58	37	0.0025
61	36	0.0025
67	35	0.0025
71	34	0.0025
86	33	0.0025
88	32	0.0025
95	31	0.0025
107	30	0.0025
111	29	0.0025
124	28	0.0025
125	27	0.0025
126	26	0.0025
129	25	0.0025
130	24	0.0025
134	23	0.0025
136	22	0.0025
142	21	0.0025
143	20	0.0025
147	19	0.0025
156	18	0.0025
157	17	0.0025
159	16	0.0025
164	15	0.0025
165	14	0.0025
170	13	0.0025
42	12	0
52	11	0
64	10	0
76	9	0
83	8	0
84	7	0
98	6	0
105	5	0
115	4	0
150	3	0
130		U

Table 3 - TAP WATER SAMPLE ANALYSIS - SUMMER 1996

168 174	2	0
174	1	0
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		3000-0-1-000
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TABLE 3 - TAP WATER SAMPLE ANALYSIS - SUMMER 1996

Sample	Copper Copp	
No.	Ranking	mg/L
174	50	0.68
168	49	0.58
159	48	0.52
143	47	0.47
147	46	0.46
156	45	0.45
2	44	0.43
130	43	0.39
115	42	0.38
142	41	0.35
26	40	0.32
136	39	0.32
39	38	0.28
64	37	0.27
107	36	0.27
170	35	0.27
43	34	0.26
50	33	0.26
83	32	0.26
88	31	0.25
129	30	0.25
67	29	0.24
164	28	0.24
3	27	0.21
42	26	0.21
131	25	0.21
134	24	0.21
125	23	0.2
55	22	0.19
71	 21	0.17
86	20	0.17
124	19	0.17
52	18	0.16
95	 17	0.15
98	 16	0.15
1	15	0.14
61	 14	0.14
76	13	0.14
105	12	0.14
58	11	0.13
10	10	0.12
36	 9	0.11
84	 8	0.11
126	 7	0.11
150	6	0.11
165	 5	0.11
40	4	The state of the s
57		0.067
3/	3	0.056

TABLE 3 - TAP WATER SAMPLE ANALYSIS - SUMMER 1996

111 157		2	0.025 0.025
157		1	0.025
			0.020
<b></b>			
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	M		
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TABLE 4 - DISTRIBUTION SYSTEM WATER QUALITY ANALYSIS Samples Taken 08/12/96 - 08/13/96

Sample	Lead	Copper	Turbitity		Temp.	Cond
No.	(mg/L)	(mg/L)	(NTU)	ph	(deg C)	(mS/cm)
D-31	0	0	0	7.5	28.3	0.28
D-34	0	0	0	7.8	29.4	0.31
D-36	0	0	0	7.7	26.3	0.27
D-66	0	0	0	7.7	28	0.29
D-68	0.0025	0	0	7.6	25.9	0.37
D-69	0.0025	0	0	7.4	27.5	0.38
D-70	0.0025	0	0	7.5	28.3	0.32
D-76	0.0025	0	0	7.6	25.7	0.28
D-79	0	0	0	7.6	23.7	0.28
D-81	0.0025	0	0.1	7.5	26.6	0.33
D-82	0	0	0.1	7.5	26	0.33
D-116	0.0025	0	0	7.4	27.5	0.37
D-117	0.0025	0	0.2	7.7	28.9	0.2
D-126	0.0025	0	0	7.7	27.2	0.3
D-128	0.0025	0	0	7.5	26.2	0.38
D-129	0	0	0.1	7.4	24.6	0.38
D-130	0	0	0.1	7.4	23.8	0.33
D-133	0	0	0	7.8	26.9	0.25
D-134	0	0	0	7.8	27.1	0.3
D-155	0.0025	0	0	7.7	25.9	0.2
D-156	0.0025	0	0	7.4	25.6	0.37
D-159	0	0	0	7.5	25.4	0.37
D-181	0	0	0	7.4	25.4	0.4
D-202	0	0	0	7.5	26	0.4
						0.1
Average	0.0012	0	0.04	7.6	26.5	0.32
Minimum	0	0	0	7.4	23.7	0.2
Maximum	0.0025	0	0.2	7.8	29.4	0.4

Table 5 - Source Water Analysis

	TA		JRCE WAT			SIS	
Samples Taken 08/08/96 - 08/09/96							
Sample	Lead	Copper	Alkalinity (mg/L	Calcium		Temp.	Cond.
No.	(mg/L)	(mg/l)	CaCO3)	(mg/L)	На	(deg C)	(mS/cm)
W-79	0	0	130	29	7.5	(deg C)	0.32
W-83	0	0	140	28	7.5	23.6	0.34
W-86	0	0	150	30	7.4	22.9	0.33
W-91	0	0	100	25	7.5	24.2	0.28
W-94	0	0	79	17	7.2	22.1	0.23
W-97	0	0	140	30	7.5	25	0.36
W-104	0	0	69	13	7.6	26.6	0.18
W-117	0	0	100	22	7.4	22	0.27
W-119	0	0	53	11	7.5	25.5	0.13
W-120	0	0	89	19	7.5	21.6	0.25
W-121	0	0	93	20	7.6	23.4	0.27
W-133	0	0	120	30	7.4	26	0.36
W-136	0	0	120	29	7.4	22.7	0.35
W-138	0	0	99	18	7.6	22.8	0.26
W-140	0	0	130	45	7.4	26.3	0.49
W-148	0	0	93	20	7.5	25.2	0.22
W-150	0	0	110	25	7.5	24.6	0.26
W-154	0	0	120	26	7.6	22.6	0.31
W-169	0	0	99	19	7.7	26	0.24
W-302	0	0	110	25	7.5	25	0.27
Average	0	0	107.2	24.05	7.49	24.11	0.286
Minimum	0	0	53	11	7.2	21.6	0.13
Maximum	0	0	150	45	7.7	26.6	0.49

### APPENDIX A

# INSTRUCTIONS AND RESIDENT CHAIN OF CUSTODY

DIRECTIONS--RESIDENT TAP SAMPLE COLLECTION PROCEDURES

These samples are being collected to determine the contribution of household fixtures and pipes and/or solder to the lead and copper levels in tap water. This sampling effort is required by the State of California, Department of Health Services, and is being accomplished through the cooperation of homeowners and residents. The collection procedure is described in detail below:

- 1. On the day prior to collecting the sample thoroughly clean and remove all debris which may have accumulated inside the aerator of your kitchen tap water faucet. Run the tap for 1-2 minutes after cleaning so that no loose debris will impact sampling process.
- 2. <u>Do not use any water for 6-8 hours on vour premises prior to sampling.</u> The Water Division recommends that either early mornings (after awakening) or early evenings (after returning from work) are the best sampling times to ensure that the proper water conditions exist.
- 3. The primary kitchen cold water faucet is to be used for sampling. The sample must be 100% from the cold water side of the tap; it can not be a mixture of water "dialed" from both hot and cold service lines. Place the open sample bottle below the faucet and gently open the cold water tap. Slowly fill the sample bottle to the base of the neck and turn off the water. It should take 45-60 seconds to fill the sample bottle.
- 4. Tightly cap the sample bottle and place in the plastic bag provided. Complete the information requested below and place in the plastic bag with the sample bottle.
- 5. Place the sample outside your home for pick-up by 8:00 AM, Monday August 12th.
- 6. Results from this monitoring effort will be provided to participating customers when reports are generated for the State of California, Department of Health Services.

Please call Bill Dunn at 498-4136 if you have any questions regarding these instructions.

TO DE COLON ETER DA DECEDE	3 m . 1 m n mm		*	bathtu
TO BE COMPLETED BY KESIDE	NI AND REIT	URNED WITH SAN	APLE:	Lauca
TO BE COMPLETED BY RESIDE Water was last used:	TIME 10:30	toylet DATE	8-9-96	fance
Sample was collected:	TIME	2:30 am DATE_	8-10-96	,
I have read the above directions and (b) (6)	have taken a tar	sample in accordan	ce with these direc	tions.
PRINTED NAME_				
ADDRESS				
TO BE COMPLETED BY WATER	DIVISION EN	IPLOYEE:		
Sample picked up by		Time	Date	
h:\prd\sproj\wq\lead\96sample.wp				
		843	ON 3rd St	

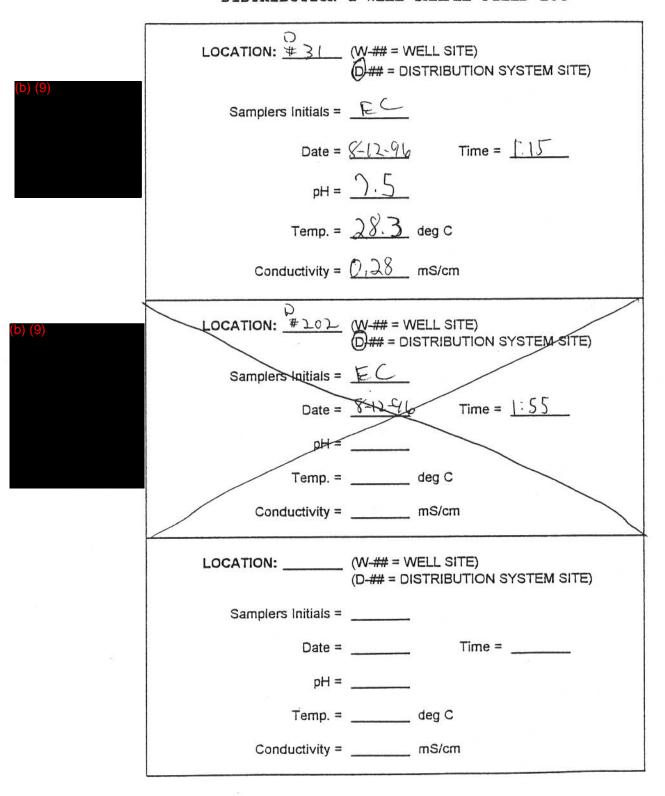
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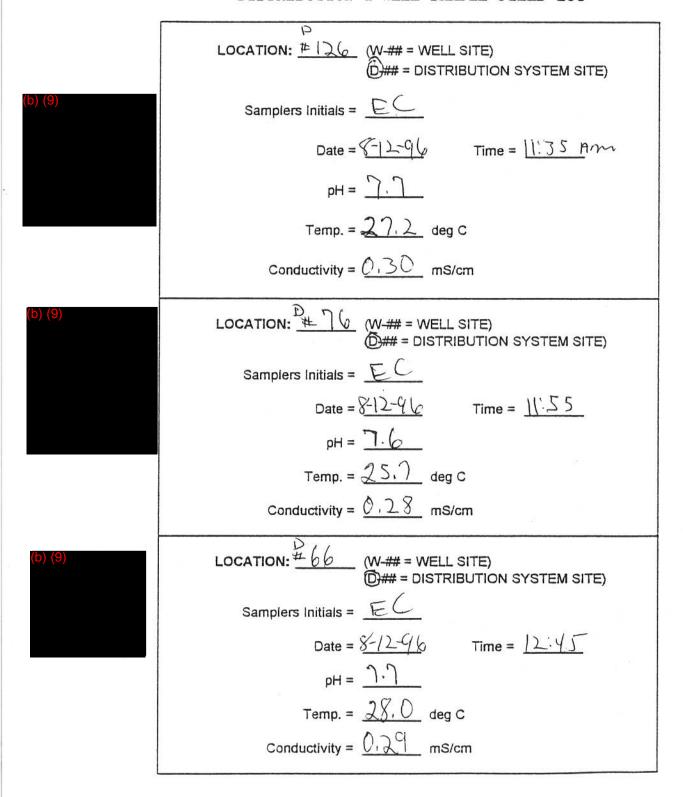
### APPENDIX A

# INSTRUCTIONS AND RESIDENT CHAIN OF CUSTODY

### APPENDIX B

## DISTRIBUTION SYSTEM RESULTS





(b) (9)	LOCATION: # 116 (W-## = WELL SITE)  (D-## = DISTRIBUTION SYSTEM SITE)
· / · /	Samplers Initials = E
	Date = $8 - 12 - 96$ Time = $10:40$ Am
	pH = 7,4
	Temp. = $27.5$ deg C
	Conductivity = (0.37) mS/cm
(b) (9)	LOCATION: (W-## = WELL SITE)  (D## = DISTRIBUTION SYSTEM SITE)
	Samplers Initials = <u>EC</u>
	Date = 8-12-96 Time = 11:00 Ann
	pH = 7.4
	Temp. = $\frac{27.5}{5}$ deg C
	Conductivity = $\frac{0.38}{ms/cm}$ ms/cm
(b) (9)	LOCATION: # 1 28 (W-## = WELL SITE)  (D## = DISTRIBUTION SYSTEM SITE)
	Samplers Initials =E
	Date = $8-12-96$ Time = $11:15$ AM
	$pH = \frac{7.5}{1}$
	Temp. = $\frac{26.2}{100}$ deg C
ic ie	Conductivity = $0.38$ ms/cm

#### DISTRIBUTION & WELL SAMPLE FIELD LOG

LOCATION: 155 # (W-## = WELL SITE) (D)## = DISTRIBUTION SYSTEM SITE) Samplers Initials = \_\_\_\_\_ Date = 8-12-96 Time = 9:45 A211  $pH = \frac{1}{1}$ Temp. = 25.9 deg C Conductivity =  $\nabla \cdot 2^{\circ}$  mS/cm LOCATION: (W-## = WELL SITE)

(D-## = DISTRIBUTION SYSTEM SITE) Samplers Initials = EC Date = 8-12-96 Time = 10:00 Am pH = ). ) Temp. = 28.9 deg C Conductivity = 0,20 ms/cm LOCATION: # ) (W-## = WELL SITE)

(D)## = DISTRIBUTION SYSTEM SITE) Samplers Initials = EC Date = 8-12-96 Time = 10:20 Am pH = 7,5 Temp. =  $\frac{28.3}{\text{deg C}}$ Conductivity = 0.32 ms/cm

(b) (9)	LOCATION: # 15 (w ## = WELL SITE)  (W ## = DISTRIBUTION SYSTEM SITE)
	Samplers Initials = $\frac{E.C}{}$
	Date = $8-12-96$ Time = $8:50$ Ann
	$pH = \frac{1.4}{}$
	Temp. = $25.6$ deg C
	Conductivity = $O, 3^n$ mS/cm
(b) (9)	LOCATION: # 159 (W-## = WELL SITE)  (D)## = DISTRIBUTION SYSTEM SITE)
	Samplers Initials = E
	Date = $8 - 12 - 96$ Time = $9:15$ Am
	$pH = \frac{1}{5}$
	Temp. = $\frac{25.4}{100}$ deg C
	Conductivity = $0.37$ mS/cm
(1)	LOCATION: #-68 (W-## = WELL SITE)  (D-## = DISTRIBUTION SYSTEM SITE)
(b) ( <del>9</del> )	Samplers Initials = £C
	Date = $8-12-96$ Time = $9:25$ Arm
	$pH = \frac{1}{1} \cdot C$
	Temp. = $\frac{25.9}{100}$ deg C
	Conductivity = 0.37 mS/cm

	E.
(b) (9)	LOCATION: (W-## = WELL SITE)  (D-## = DISTRIBUTION SYSTEM SITE)
	Samplers Initials = 15
	Date = $8-13-96$ Time = $8:30$ H m
	pH = \(\frac{1}{\cdot \cdot \cdot \sigma}\)
	Temp. = $26.0$ deg C
	Conductivity = 0.40 ms/cm
(b) (9)	LOCATION: 129 (W-## = WELL SITE)  ①## = DISTRIBUTION SYSTEM SITE)
	Samplers Initials =
	Date = $8-13-96$ Time = $8:50$ AM
	$pH = \frac{1}{2} \cdot \frac{4}{4}$
	Temp. = $\frac{24.6}{2}$ deg C
	Conductivity = 0.38 ms/cm
(b) (9)	LOCATION: $ S $ (W-## = WELL SITE) $ D $ (W-## = DISTRIBUTION SYSTEM SITE)
	Samplers Initials =EC
	Date = $8-13-96$ Time = $9.30$ Am
	pH = 7,4
	Temp. = $\frac{25.4}{\text{deg C}}$
	Conductivity = $0.40$ ms/cm
,	

(b) (9)	LOCATION: 130 (W-## = WELL SITE)  (D-## = DISTRIBUTION SYSTEM SITE)
	Samplers Initials = EC
	Date = $8-13-9k$ Time = $9:45$ Ann
	pH = 7.4
	Temp. = <u>23.8</u> deg C
¥	Conductivity = $0.33$ mS/cm
ь) (9)	LOCATION: 19 (W-## = WELL SITE)  (D-## = DISTRIBUTION SYSTEM SITE)
	Samplers Initials = <u>EC</u>
	Date = $8 - 13 - 96$ Time = $10:05$ Ann
	pH = 7.6
	Temp. = $\frac{2}{2}$ deg C
(b) (9)	Conductivity = $0.28$ ms/cm
	LOCATION: W-## = WELL SITE)  (W-## = DISTRIBUTION SYSTEM SITE)
	Samplers Initials = _EC
	Date = $\frac{8-13-9}{10}$ Time = $\frac{10:25}{10}$
	$pH = \frac{\gamma}{5}$
	Temp. = 26.6 deg C
	Conductivity = $0.33$ ms/cm

(b) (9)	LOCATION: (W-## = WELL SITE)  (D## = DISTRIBUTION SYSTEM SITE)
	Samplers Initials = EC
	Date = $8-13-9$ & Time = $10:45$
	pH = 1.5
	Temp. = <u>26.0</u> deg C
	Conductivity = 0,33 ms/cm
(b) (9)	LOCATION: 34 (W-## = WELL SITE)  (D## = DISTRIBUTION SYSTEM SITE)
	Samplers Initials = EC
	Date = $8-13-96$ Time = $11:05$
	pH = 7.8
	Temp. = $\frac{29.4}{}$ deg C
	Conductivity = 0.31 mS/cm
(b) (9)	LOCATION: # 134 (W-## = WELL SITE)  ①## = DISTRIBUTION SYSTEM SITE)
	Samplers Initials =
	Date = $8-13-96$ Time = $11:25$ A M
	pH = 7.8
	Temp. = $\frac{27 \cdot l}{deg C}$
	Conductivity = 0.30 ms/cm

LOCATION: 133	(W-## = WELL SITE) (D-## = DISTRIBUTION SYSTEM SITE)
Samplers Initials =	te(
Date =	8-13-96 Time = 11:50
pH =	7.8
Temp. =	26.9 deg C
Conductivity =	<u>0.25</u> ms/cm
LOCATION: D#36	(W-## = WELL SITE) (D-## = DISTRIBUTION SYSTEM SITE)
Samplers Initials =	
	8-13-96 Time = $12:45$
	7.7
0.5	26,3 deg C
Conductivity =	(), (1) mS/cm
LOCATION:	(W-## = WELL SITE) (D-## = DISTRIBUTION SYSTEM SITE)
Samplers Initials =	
Date =	Time =
pH =	
Temp. =	deg C
Conductivity =	mS/cm
	Samplers Initials =  Date =  pH =  Temp. =  Conductivity =  LOCATION: D#36  Samplers Initials =  Date =  pH =  Temp. =  Conductivity =  LOCATION:  Samplers Initials =  Date =  pH =  Temp. =  Temp. =  Temp. =

### APPENDIX C

# SOURCE WATER RESULTS



# Certificate of Analysis

Report Issue Date: 08/29/96

Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Number

9608000117

Lab Number

1779

Project Number Sample Description

Well Sample STA #94

Sample Type : LIQUID

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	N/A	N/A	79	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	N/A	N/A	97	mg/L	1	1
EPA 200.7	Calcium (Ca)	08/21/96	08/21/96	17	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)	N/A	N/A	ND	mg/L	1	1
SM 2510-B	Conductivity, Specific (EC)	N/A	N/A	210	μmho/c	1	1
EPA 200.8	Copper (Cu)	08/26/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)	N/A	N/A	ND	mg/L	1	1
EPA 200.8	Lead (Pb)	08/26/96	08/26/96	ND	mg/L	0.001	1
SM 4500-H-	pH	N/A	N/A	7.20	STD	-	ī
SM 2130-B	Turbidity (NTU)	N/A	08/13/96	ND	NTU	0.1	1

ND None Detected mg/L Milligrams/Liter  $\mu g/L$ Micrograms/Liter :

may result in higher detection limits

DLR:

Milligrams/Kilogram mg/kg μg/kg Micrograms/Kilogram

DLR = DLR x Dilution Factor

Detection Limit for the Purposes of Reporting

Exceptional sample matrices or interferences



# SAMPLE SUBMISSION SUMMARY

Submission Date: 08/08/96 Submission Time: 15:29

Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

9608000117

Submission Number Client Project ID

Purchase Order No.

Lab Number	Client Sample Desc.	Matrix	<b>Date Sampled</b>	Time Sampled
1779	Well Sample STA #94	DW	08/08/96	08:20
1780	Well Sample STA #117	DW	08/08/96	08:55
1781	Well Sample STA #136	DW	08/08/96	09:10
1782	Well Sample STA #97	DW	08/08/96	09:25
1783	Well Sample STA #154	DW	08/08/96	09:35
1784	Well Sample STA #169	DW	08/08/96	10:10
1785	Well Sample STA #133	DW	08/08/96	10:40
1786	Well Sample STA #140	DW	08/08/96	11:00
1787	Well Sample STA #83	DW	08/08/96	11:20
1788	Well Sample STA #86	DW	08/08/96	11:40
1789	Well Sample STA #150	DW	08/08/96	13:30
1790	Well Sample STA #148	DW	08/08/96	14:00



# Certificate of Analysis

Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Number

9608000117

Lab Number

Project Number

Sample Description

1780

Well Sample STA #117

Report Issue Date: 08/29/96

Sample Type : LIQUID

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	N/A	N/A	100	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	N/A	N/A	130	$m_g/L$	1	1
EPA 200.7	Calcium (Ca)	08/21/96	08/21/96	22	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)	N/A	N/A	ND	mg/L	1	ĩ
SM 2510-B	Conductivity, Specific (EC)	N/A	N/A	260	μmho/c	ī	ĩ
EPA 200.8	Copper (Cu)	08/26/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)	N/A	N/A	ND	mg/L	1	1
EPA 200.8	Lead (Pb)	08/26/96	08/26/96	ND	mg/L	0.001	ī
SM 4500-H-	pH	N/A	N/A	7.40	STD	11.00	1
SM 2130-B	Turbidity (NTU)	N/A	08/13/96	ND	NTU	0.1	1

ND mg/L

μg/kg

None Detected

 $\mu g/L$ mg/kg

Milligrams/Liter Micrograms/Liter

Milligrams/Kilogram Micrograms/Kilogram DLR:

Detection Limit for the Purposes of Reporting

Exceptional sample matrices or interferences

may result in higher detection limits

DLR = DLR x Dilution Factor



#### SAMPLE SUBMISSION SUMMARY

Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Date: 08/08/96 Submission Time: 15:29

Submission Number

: 9608000117

Client Project ID

Purchase Order No.

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled
1779	Weil Sample STA #94	DW	08/08/96	08:20
1780	Well Sample STA #117	DW	08/08/96	08:55
1781	Well Sample STA #136	DW	08/08/96	09:10
1782	Well Sample STA #97	DW	08/08/96	09:25
1783	Well Sample STA #154	DW	08/08/96	09:35
1784	Weil Sample STA #169	DW	08/08/96	10:10
1785	Weil Sample STA #133	DW	08/08/96	10:40
1786	Weil Sample STA #140	DW	08/08/96	11:00
1787	Weil Sample STA #83	DW	08/08/96	11:20
1788	Weil Sample STA #86	DW	08/08/96	11:40
1789	Well Sample STA #150	DW	08/08/96	13:30
1790	Well Sample STA #148	DW	08/08/96	14:00



# Certificate of Analysis

Report Issue Date: 08/29/96

Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

9608000117

Sample Type : LIQUID

Lab Number

Submission Number

1781

Project Number Sample Description

Well Sample STA #136

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	N/A	N/A	120	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	N/A	N/A	150	mg/L	1	1
EPA 200.7	Calcium (Ca)	08/21/96	08/21/96	29	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)	N/A	N/A	ND	mg/L	1	1
SM 2510-B	Conductivity, Specific (EC)	N/A	N/A	360	μmho/c	1	1
EPA 200.8	Copper (Cu)	08/26/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)	N/A	N/A	ND	mg/L	1	1
EPA-200.8	Lead (Pb)	08/26/96	08/26/96	ND	mg/L	0.001	1
SM 4500-H-	pH	N/A	N/A	7.40	STD		1
SM 2130-B	Turbidity (NTU)	N/A	08/13/96	ND	NTU	0.1	1

ND mg/L

μg/kg

None Detected

Milligrams/Liter

Micrograms/Kilogram

 $\mu g/L$ Micrograms/Liter mg/kg Milligrams/Kilogram DLR:

Detection Limit for the Purposes of Reporting

Exceptional sample matrices or interferences

may result in higher detection limits

DLR = DLR x Dilution Factor



# SAMPLE SUBMISSION SUMMARY

Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Date: 08/08/96

Submission Time: 15:29

Submission Number

: 9608000117

Client Project ID

Purchase Order No.

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled	
1779	Well Sample STA #94	DW	08/08/96	08:20	
1780	Well Sample STA #117	DW	08/08/96	08:55	
1781	Well Sample STA #136	DW	08/08/96	09:10	
1782	Well Sample STA #97	DW	08/08/96	09:25	
1783	Well Sample STA #154	DW	08/08/96	09:35	
1784	Well Sample STA #169	DW	08/08/96	10:10	
1785	Well Sample STA #133	DW	08/08/96	10:40	
1786	Weil Sample STA #140	DW	08/08/96	11:00	
1787	Well Sample STA #83	DW	08/08/96	11:20	
1788	Well Sample STA #86	DW	08/08/96	11:40	
1789	Well Sample STA #150	DW	08/08/96	13:30	
1790	Weil Sample STA #148	DW	08/08/96	14:00	

# SK ANALYTICAL LABORATORIES

# Certificate of Analysis

Report Issue Date: 08/29/96

Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Number

9608000117

Lab Number

1782

Project Number Sample Description

Well Sample STA #97

Sample Type : LIQUID

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	N/A	N/A	140	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	N/A	N/A	170	mg/L	1	1
EPA 200.7	Calcium (Ca)	08/21/96	08/21/96	30	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)	N/A	N/A	ND	mg/L	1	1
SM 2510-B	Conductivity, Specific (EC)	N/A	N/A	370	μmho/c	1	1
EPA 200.8	Copper (Cu)	08/26/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)	N/A	N/A	ND	mg/L	1	1
EPA 200.8	Lead (Pb)	08/26/96	08/26/96	ND	mg/L	0.001	1
SM 4500-H-	pH	N/A	N/A	7.50	STD	V00 100 100 100 100 100 100 100 100 100	1
SM 2130-B	Turbidity (NTU)	N/A	08/13/96	ND	NTU	0.1	1

ND None Detected mg/L Milligrams/Liter  $\mu g/L$ Micrograms/Liter mg/kg

μg/kg

Milligrams/Kilogram Micrograms/Kilogram DLR: Detection Limit for the Purposes of Reporting

Exceptional sample matrices or interferences

may result in higher detection limits

DLR = DLR x Dilution Factor



Submission Date: 08/08/96 Submission Time: 15:29

Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Number

Client Project ID

Purchase Order No.

9608000117

Matrix Date Sampled Time Sampled Lab Number Client Sample Desc. DW 08/08/96 08:20 1779 Well Sample STA #94 DW 08/08/96 08:55 1780 Well Sample STA #117 09:10 DW 08/08/96 Well Sample STA #136 1781 Well Sample STA #97 DW 08/08/96 09:25 1782 09:35 Well Sample STA #154 DW 08/08/96 1783 DW 08/08/96 10:10 1784 Well Sample STA #169 DW 08/08/96 10:40 1785 Well Sample STA #133 11:00 DW 08/08/96 1786 Well Sample STA #140 DW 08/08/96 11:20 Well Sample STA #83 1787 DW 08/08/96 11:40 Well Sample STA #86 1788 DW 08/08/96 13:30 Well Sample STA #150 1789 DW 08/08/96 14:00 1790 Well Sample STA #148

## LABORATORIES

#### Certificate of Analysis

Sample Type : LIQUID

Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Report Issue Date: 08/29/96

Submission Number

9608000117

Lab Number

1783

Project Number

Sample Description

Well Sample STA #154

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	N/A	N/A	120	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	N/A	N/A	150	mg/L	1	1
EPA 200.7	Calcium (Ca)	08/21/96	08/21/96	26	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)	N/A	N/A	ND	mg/L	1	ī
SM 2510-B	Conductivity, Specific (EC)	N/A	N/A	310	μmho/c	1	1
EPA 200.8	Copper (Cu)	08/26/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)	N/A	N/A	ND	mg/L	1	1
EPA 200.8	Lead (Pb)	08/26/96	08/26/96	ND	mg/L	0.001	1
SM 4500-H-	pH	N/A	N/A	7.60	STD	-	1
SM 2130-B	Turbidity (NTU)	N/A	08/13/96	0.10	NTU	0.1	1

ND  $\mu g/L$ 

mg/kg

µg/kg

None Detected

mg/L Milligrams/Liter

Micrograms/Liter Milligrams/Kilogram

Micrograms/Kilogram

DLR:

Detection Limit for the Purposes of Reporting

Exceptional sample matrices or interferences

may result in higher detection limits



Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Date: 08/08/96

Submission Time: 15:29

Submission Number

: 9608000117

Client Project ID

Purchase Order No.

Lab Number	Client Sample Desc.	Matrix	<b>Date Sampled</b>	Time Sampled	
1779	Weil Sample STA #94	DW	08/08/96	08:20	
1780	Weil Sample STA #117	DW	08/08/96	08:55	
1781	Well Sample STA #136	DW	08/08/96	09:10	
1782	Well Sample STA #97	DW	08/08/96	09:25	
1783	Well Sample STA #154	DW	08/08/96	09:35	
1784	Well Sample STA #169	DW	08/08/96	10:10	
1785	Well Sample STA #133	DW	08/08/96	10:40	
1786	Weil Sample STA #140	DW	08/08/96	11:00	
1787	Well Sample STA #83	DW	08/08/96	11:20	
1788	Well Sample STA #86	DW	08/08/96	11:40	
1789	Well Sample STA #150	DW	08/08/96	13:30	
1790	Well Sample STA #148	DW	08/08/96	14:00	

## SK LABORATORIES

#### Certificate of Analysis

Sample Type : LIQUID

08/29/96

0.1

1

Report Issue Date:

NTU

Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Number

9608000117

Lab Number

SM 2130-B

1784

Project Number

Sample Description

Turbidity (NTU)

Well Sample STA #169

Date Date Method Analyte Prep. Anal. Result Units DLR Dil SM 2320-B N/A N/A 99 1 Alkalinity (as mg/L 1 CaCO3) SM 2320-B Bicarbonate (as N/A N/A 120 mg/L 1 1 HCO3) EPA 200.7 Calcium (Ca) 08/21/96 08/21/96 19 0.1 mg/L 1 SM 2320-B Carbonate (as CO3) N/A N/A ND mg/L 1 1 SM 2510-B Conductivity, N/A N/A 240 μmho/c 1 1 Specific (EC) 08/26/96 **EPA 200.8** 08/26/96 ND Copper (Cu) 0.010 mg/L 1 SM 2320-B Hydroxide (as OH) ND N/A N/A mg/L 1 **EPA 200.8** 08/26/96 08/26/96 Lead (Pb) ND 0.001 1 mg/L pН SM 4500-H-N/A N/A 7.70 1 STD

08/13/96

ND

N/A

mg/L

None Detected

ND

µg/L

Milligrams/Liter Micrograms/Liter

mg/kg Milligrams/Kilogram μg/kg Micrograms/Kilogram DLR:

Detection Limit for the Purposes of Reporting

Exceptional sample matrices or interferences

may result in higher detection limits



Bill Dunn

Fresno City Water Division

1910 E. University Ave. Fresno, CA 93703-

Submission Date: 08/08/96 Submission Time: 15:29

9608000117

Submission Number Client Project ID

Purchase	No.

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled
1779	Weil Sample STA #94	DW	08/08/96	08:20
1780	Weil Sample STA #117	DW	08/08/96	08:55
1781	Well Sample STA #136	DW	08/08/96	09:10
1782	Well Sample STA #97	DW	08/08/96	09:25
1783	Well Sample STA #154	DW	08/08/96	09:35
1784	Well Sample STA #169	DW	08/08/96	10:10
1785	Weil Sample STA #133	DW	08/08/96	10:40
1786	Weil Sample STA #140	DW	08/08/96	11:00
1787	Well Sample STA #83	DW	08/08/96	11:20
1788	Weil Sample STA #86	DW	08/08/96	11:40
1789	Well Sample STA #150	DW	08/08/96	13:30
1790	Well Sample STA #148	DW	08/08/96	14:00



#### Certificate of Analysis

Report Issue Date: 08/29/96

Bill Dunn

Fresno City Water Division 1910 E. University Ave.

Fresno, CA 93703-

Submission Number

9608000117

Lab Number

Project Number

Sample Description

1785

Well Sample STA #133

Sample Type : LIQUID

Method	Analyte	Date Prep.	Date Anai.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	N/A	N/A	120	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	N/A	N/A	150	mg/L	1	1
EPA 200.7	Calcium (Ca)	08/21/96	08/21/96	30	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)	N/A	N/A	ND	mg/L	1	1
SM 2510-B	Conductivity, Specific (EC)	N/A	N/A	370	μmho/c	1	1
EPA 200.8	Copper (Cu)	08/26/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)	N/A	N/A	ND	mg/L	1	1
EPA 200.8	Lead (Pb)	08/26/96	08/26/96	ND	mg/L	0.001	1
SM 4500-H-	pH	N/A	N/A	7.40	STD	1.	1
SM 2130-B	Turbidity (NTU)	N/A	08/13/96	ND	NTU	0.1	1

ND mg/L None Detected

Milligrams/Liter

 $\mu g/L$ mg/kg Micrograms/Liter

μg/kg

Milligrams/Kilogram Micrograms/Kilogram DLR:

Detection Limit for the Purposes of Reporting

Exceptional sample matrices or interferences

may result in higher detection limits



Submission Date: 08/08/96 Submission Time: 15:29

Bill Dunn

Fresno City Water Division 1910 E. University Ave.

Fresno, CA 93703-

Submission Number

Client Project ID

Purchase Order No.

9608000117

Matrix **Date Sampled** Time Sampled Lab Number Client Sample Desc. DW 08/08/96 08:20 1779 Well Sample STA #94 DW 08/08/96 08:55 1780 Well Sample STA #117 DW 08/08/96 09:10 Well Sample STA #136 1781 Well Sample STA #97 DW 08/08/96 09:25 1782 Well Sample STA #154 DW 08/08/96 09:35 1783 1784 Well Sample STA #169 DW 08/08/96 10:10 1785 Well Sample STA #133 DW 08/08/96 10:40 DW 08/08/96 11:00 1786 Weil Sample STA #140 Well Sample STA #83 DW 08/08/96 11:20 1787 DW 08/08/96 Well Sample STA #86 11:40 1788 Well Sample STA #150 DW 08/08/96 13:30 1789 DW 1790 Well Sample STA #148 08/08/96 14:00

## LABORATORIES

#### Certificate of Analysis

Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Report Issue Date: 08/29/96

Submission Number

9608000117

Sample Type : LIQUID

Lab Number

Project Number Sample Description 1786

Well Sample STA #140

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	N/A	N/A	130	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	N/A	N/A	160	mg/L	1	1
EPA 200.7	Calcium (Ca)	08/21/96	08/21/96	45	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)	N/A	N/A	ND	mg/L	1	ī
SM 2510-B	Conductivity, Specific (EC)	N/A	N/A	530	μmho/c	ī	1
EPA 200.8	Copper (Cu)	08/26/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)	N/A	N/A	ND	mg/L	1	î
EPA 200.8	Lead (Pb)	08/26/96	08/26/96	ND	mg/L	0.001	ĩ
SM 4500-H-	pH	N/A	N/A	7.40	STD	-	ĩ
SM 2130-B	Turbidity (NTU)	N/A	08/13/96	0.10	NTU	0.1	1

ND mg/L None Detected Milligrams/Liter

 $\mu g/L$ mg/kg μg/kg

Micrograms/Liter Milligrams/Kilogram Micrograms/Kilogram DLR:

Detection Limit for the Purposes of Reporting Exceptional sample matrices or interferences

may result in higher detection limits



Submission Date: 08/08/96 Submission Time: 15:29

Bill Dunn

Fresno City Water Division 1910 E. University Ave.

Fresno, CA 93703-

: 9608000117

Submission Number Client Project ID

Purchase Order No.

900000117

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled
1779	Well Sample STA #94	DW	08/08/96	08:20
1780	Weil Sample STA #117	DW	08/08/96	08:55
1781	Weil Sample STA #136	DW	08/08/96	09:10
1782	Well Sample STA #97	DW	08/08/96	09:25
1783	Well Sample STA #154	DW	08/08/96	09:35
1784	Well Sample STA #169	DW	08/08/96	10:10
1785	Weil Sample STA #133	DW	08/08/96	10:40
1786	Weil Sample STA #140	DW	08/08/96	11:00
1787	Well Sample STA #83	DW	08/08/96	11:20
1788	Well Sample STA #86	DW	08/08/96	11:40
1789	Well Sample STA #150	DW	08/08/96	13:30
1790	Well Sample STA #148	DW	08/08/96	14:00



#### Certificate of Analysis

Report Issue Date: 08/29/96

Sample Type : LIQUID

Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Number

9608000117

Lab Number

1787

Project Number

Sample Description

Well Sample STA #83

Date Date Method Analyte Anal. Result Units DLR Prep. Dil SM 2320-B N/A Alkalinity (as N/A 140 mg/L 1 1 CaCO3) SM 2320-B Bicarbonate (as N/A N/A 170 1 1 mg/L HCO3) Calcium (Ca) 0.1 EPA 200.7 08/21/96 08/21/96 28 mg/L 1 SM 2320-B Carbonate (as CO3) N/A N/A ND mg/L 1 1 SM 2510-B Conductivity, N/A N/A 330 1 µmho/c 1 Specific (EC) EPA 200.8 08/26/96 08/26/96 ND Copper (Cu) 0.010 mg/L 1 SM 2320-B Hydroxide (as OH) N/A ND N/A mg/L1 **EPA 200.8** 08/26/96 08/26/96 Lead (Pb) ND 0.001 1 mg/LpΗ SM 4500-H-N/A N/A 7.50 STD 1 SM 2130-B Turbidity (NTU) N/A 08/13/96 ND NTU 0.1 1

ND mg/L

None Detected Milligrams/Liter

µg/L : Micrograms/Liter mg/kg : Milligrams/Kilogram µg/kg Micrograms/Kilogram DLR :

Detection Limit for the Purposes of Reporting Exceptional sample matrices or interferences

may result in higher detection limits



Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Date: 08/08/96 Submission Time: 15:29

Submission Number

: 9608000117

Client Project ID Purchase Order No.

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled
1779	Well Sample STA #94	DW	08/08/96	08:20
1780	Well Sample STA #117	DW	08/08/96	08:55
1781	Well Sample STA #136	DW	08/08/96	09:10
1782	Well Sample STA #97	DW	08/08/96	09:25
1783	Well Sample STA #154	DW	08/08/96	09:35
1784	Well Sample STA #169	DW	08/08/96	10:10
1785	Well Sample STA #133	DW	08/08/96	10:40
1786	Well Sample STA #140	DW	08/08/96	11:00
1787	Weil Sample STA #83	DW	08/08/96	11:20
1788	Well Sample STA #86	DW	08/08/96	11:40
1789	Well Sample STA #150	DW	08/08/96	13:30
1790	Well Sample STA #148	DW	08/08/96	14:00



#### Certificate of Analysis

Report Issue Date: 08/29/96

Sample Type : LIQUID

Bill Dunn

Fresno City Water Division 1910 E. University Ave.

Fresno, CA 93703-

9608000117

Submission Number
Lab Number

Project Number Sample Description 1788

Well Sample STA #86

1788

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	N/A	N/A	150	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	N/A	N/A	180	mg/L	1	1
EPA 200.7	Calcium (Ca)	08/21/96	08/21/96	30	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)	N/A	N/A	ND	mg/L	1	î
SM 2510-B	Conductivity, Specific (EC)	N/A	N/A	330	μmho/c	î	î
EPA 200.8	Copper (Cu)	08/26/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)	N/A	N/A	ND	mg/L	1	î
EPA 200.8	Lead (Pb)	08/26/96.	08/26/96	ND	mg/L	0.001	î
SM 4500-H-	pH	N/A	N/A	7.40	STD	-	î
SM 2130-B	Turbidity (NTU)	N/A	08/13/96	ND	NTU	0.1	i

ND mg/L None Detected

: Milligrams/Liter

μg/L : Micrograms/Liter
 mg/kg : Milligrams/Kilogram
 μg/kg : Micrograms/Kilogram

DLR:

Detection Limit for the Purposes of Reporting Exceptional sample matrices or interferences

may result in higher detection limits



Submission Date: 08/08/96 Submission Time: 15:29

Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Number

: 9608000117

Client Project ID

Purchase Order No.

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled	
1779	Well Sample STA #94	DW	08/08/96	08:20	
1780	Weil Sample STA #117	DW	08/08/96	08:55	
1781	Well Sample STA #136	DW	08/08/96	09:10	
1782	Well Sample STA #97	DW	08/08/96	09:25	
1783	Well Sample STA #154	DW	08/08/96	09:35	
1784	Well Sample STA #169	DW	08/08/96	10:10	
1785	Well Sample STA #133	DW	08/08/96	10:40	
1786	Weil Sample STA #140	DW	08/08/96	11:00	
1787	Well Sample STA #83	DW	08/08/96	11:20	
1788	Well Sample STA #86	DW	08/08/96	11:40	
1789	Well Sample STA #150	DW	08/08/96	13:30	
1790	Well Sample STA #148	DW	08/08/96	14:00	



#### Certificate of Analysis

Report Issue Date : 08/29/96

Bill Dunn

Fresno City Water Division 1910 E. University Ave.

Fresno, CA 93703-

Submission Number

9608000117

Lab Number

1789

Project Number

Sample Description

Well Sample STA #150

Sample Type : LIQUID

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	N/A	N/A	110	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	N/A	N/A	130	mg/L	1	1
EPA 200.7	Calcium (Ca)	08/21/96	08/21/96	25	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)	N/A	N/A	ND	mg/L	1	1
SM 2510-B	Conductivity, Specific (EC)	N/A	N/A	250	μmho/c	1	1
EPA 200.8	Copper (Cu)	08/26/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)	N/A	N/A	ND	mg/L	1	ī
EPA 200.8	Lead (Pb)	08/26/96	08/26/96	ND	mg/L	0.001	1
SM 4500-H-	pH	N/A	N/A	7.50	SŤD	-	1
SM 2130-B	Turbidity (NTU)	N/A	08/13/96	0.10	NTU	0.1	1

ND : None Detected

Milligrams/Liter mg/L  $\mu g/L$ Micrograms/Liter

Milligrams/Kilogram mg/kg Micrograms/Kilogram μg/kg

DLR: Detection Limit for the Purposes of Reporting

Exceptional sample matrices or interferences

may result in higher detection limits



Submission Date: 08/08/96

Submission Time: 15:29

Bill Dunn

Fresno City Water Division 1910 E. University Ave.

Fresno, CA 93703-

Submission Number

: 9608000117

Client Project ID

Purchase Order No.

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled	
1779	Weil Sample STA #94	DW	08/08/96	08:20	
1780	Well Sample STA #117	DW	08/08/96	08:55	
1781	Well Sample STA #136	DW	08/08/96	09:10	
1782	Well Sample STA #97	DW	08/08/96	09:25	
1783	Well Sample STA #154	DW	08/08/96	09:35	
1784	Weil Sample STA #169	DW	08/08/96	10:10	
1785	Weil Sample STA #133	DW	08/08/96	10:40	
1786	Well Sample STA #140	DW	08/08/96	11:00	
1787	Well Sample STA #83	DW	08/08/96	11:20	
1788	Well Sample STA #86	DW	08/08/96	11:40	
1789	Well Sample STA #150	DW	08/08/96	13:30	
1790	Well Sample STA #148	DW	08/08/96	14:00	

### LABORATORIES

#### Certificate of Analysis

Bill Dunn

Fresno City Water Division 1910 E. University Ave.

Fresno, CA 93703-

Submission Number

Lab Number

Project Number Sample Description 9608000117

1790

Well Sample STA #148

Report Issue Date : 08/29/96

Sample Type : LIQUID

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	N/A	N/A	93	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	N/A	N/A	110	mg/L	1	1
EPA 200.7 SM 2320-B SM 2510-B	Calcium (Ca) Carbonate (as CO3) Conductivity, Specific (EC)	08/21/96 N/A N/A	08/21/96 N/A N/A	20 ND 220	mg/L mg/L μmho/c	0.1 1 1	1 1 1
EPA 200.8 SM 2320-B EPA 200.8 SM 4500-H- SM 2130-B	Copper (Cu) Hydroxide (as OH) Lead (Pb) pH Turbidity (NTU)	08/26/96 N/A 08/26/96 N/A N/A	08/26/96 N/A 08/26/96 N/A 08/13/96	ND ND ND 7.50 ND	mg/L mg/L mg/L STD NTU	0.010	1 1 1 1

ND mg/L

None Detected

Milligrams/Liter  $\mu g/L$ Micrograms/Liter

mg/kg µg/kg

Milligrams/Kilogram Micrograms/Kilogram DLR:

Detection Limit for the Purposes of Reporting

Exceptional sample matrices or interferences may result in higher detection limits



Bill Dunn

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Date: 08/08/96 Submission Time: 15:29

Submission Number

: 9608000117

Client Project ID Purchase Order No.

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled
1779	Weil Sample STA #94	DW	08/08/96	08:20
1780	Weil Sample STA #117	DW	08/08/96	08:55
1781	Well Sample STA #136	DW	08/08/96	09:10
1782	Weil Sample STA #97	DW	08/08/96	09:25
1783	Well Sample STA #154	DW	08/08/96	09:35
1784	Well Sample STA #169	DW	08/08/96	10:10
1785	Well Sample STA #133	DW	08/08/96	10:40
1786	Well Sample STA #140	DW	08/08/96	11:00
1787	Well Sample STA #83	DW	08/08/96	11:20
1788	Well Sample STA #86	DW	08/08/96	11:40
1789	Well Sample STA #150	DW	08/08/96	13:30
1790	Well Sample STA #148	$\mathbf{D}\mathbf{W}$	08/08/96	14:00

## BSK ANALYTICAL LABORATORIES

#### Certificate of Analysis

BILL DUNN Fresno City Water Division

1910 E. University Ave. Fresno, CA 93703-

Report Issue Date: 08/29/96

Submission Number

9608000129

Lab Number
Project Number

1865

Sample Type : LIQUID

Project Number Sample Description

WELL SAMPLE STA.#138

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	08/21/96	08/22/96	99	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	08/21/96	08/22/96	120	mg/L	1	1
EPA 200.7	Calcium (Ca)	08/23/96	08/23/96	18	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)	08/21/96	08/22/96	ND	mg/L	1	î
SM 2510-B	Conductivity, Specific (EC)	08/21/96	08/22/96	210	μmho/c	î	î
EPA 200.8	Copper (Cu)	08/25/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)	08/21/96	08/22/96	ND	mg/L	1	î
EPA 200.8	Lead (Pb)	08/25/96	08/26/96	ND	mg/L	0.001	î
SM 4500-H-	pΗ	08/21/96	08/22/96	7.60	STD	-	ī
SM 2130-B	Turbidity (NTU)	N/A	08/13/96	ND	NTU	0.1	î

ND mg/L None Detected

Milligrams/Liter Micrograms/Liter DLR :

Detection Limit for the Purposes of Reporting Exceptional sample matrices or interferences

may result in higher detection limits

μg/L mg/kg μg/kg

Milligrams/Kilogram Micrograms/Kilogram



BILL DUNN

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Date: 08/09/96

Submission Time: 14:59

Submission Number

: 9608000129

Client Project ID

Purchase Order No.

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled
1865	WELL SAMPLE STA.#138	DW	08/09/96	08:25
1866	Well Sample Sta.#120	DW	08/09/96	09:15
1867	Well Sample Sta.#121	DW	08/09/96	09:25
1868	Well Sample Sta.#79	DW	08/09/96	10:05
1869	Well Sample Sta.#91	DW	08/09/96	10:25
1870	Well Sample Sta.#302	DW	08/09/96	10:45
1871	Weil Sample Sta.#104	DW	08/09/96	11:05
1872	Well Sample Sta.#119	DW	08/09/96	11:50



#### Certificate of Analysis

Report Issue Date: 08/29/96

**BILL DUNN** 

Fresno City Water Division 1910 E. University Ave.

Fresno, CA 93703-

Submission Number

Lab Number Project Number

Sample Description

9608000129

Well Sample Sta.#120

Sample Type : LIQUID

1866

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	08/21/96	08/22/96	89	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	08/21/96	08/22/96	110	mg/L	1	1
EPA 200.7	Calcium (Ca)	08/23/96	08/23/96	19	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)	08/21/96	08/22/96	ND	mg/L	1	1
SM 2510-B	Conductivity, Specific (EC)	08/21/96	08/22/96	240	μmho/c	î	î
EPA 200.8	Copper (Cu)	08/25/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)	08/21/96	08/22/96	ND	mg/L	1	î
EPA 200.8	Lead (Pb)	08/25/96	08/26/96	ND	mg/L	0.001	î
SM 4500-H-	pH	08/21/96	08/22/96	7.50	STD		î
SM 2130-B	Turbidity (NTU)	N/A	08/13/96	ND	NTU	0.1	î

ND mg/L None Detected

Milligrams/Liter

 $\mu g/L$ Micrograms/Liter mg/kg Milligrams/Kilogram μg/kg Micrograms/Kilogram DLR :

Detection Limit for the Purposes of Reporting

Exceptional sample matrices or interferences

may result in higher detection limits



BILL DUNN

Fresno City Water Division 1910 E. University Ave.

Fresno, CA 93703-

Submission Date: 08/09/96 Submission Time: 14:59

Submission Number

: 9608000129

Client Project ID

Purchase Order No.

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled
1865	WELL SAMPLE STA.#138	DW	08/09/96	08:25
1866	Well Sample Sta.#120	DW	08/09/96	09:15
1867	Well Sample Sta.#121	DW	08/09/96	09:25
1868	Well Sample Sta.#79	DW	08/09/96	10:05
1869	Well Sample Sta.#91	DW	08/09/96	10:25
1870	Well Sample Sta.#302	DW	08/09/96	10:45
1871	Well Sample Sta.#104	DW	08/09/96	11:05
1872	Well Sample Sta.#119	DW	08/09/96	11:50



#### Certificate of Analysis

Report Issue Date: 08/29/96

**BILL DUNN** 

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Number

9608000129

Lab Number

1867

Project Number

Sample Description

Well Sample Sta.#121

Sample Type : LIQUID

Method	Analyte		Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)		08/21/96	08/22/96	93	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)		08/21/96	08/22/96	110	mg/L	1	1
EPA 200.7	Calcium (Ca)		08/23/96	08/23/96	20	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)		08/21/96	08/22/96	ND	mg/L	1	ĩ
SM 2510-B	Conductivity, Specific (EC)		08/21/96	08/22/96	250	μmho/c	1	1
EPA 200.8	Copper (Cu)		08/25/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)		08/21/96	08/22/96	ND	mg/L	1	ī
EPA 200.8	Lead (Pb)	30	08/25/96	08/26/96	ND	mg/L	0.001	ī
SM 4500-H-	pH		08/21/96	08/22/96	7.60	STD	-	1
SM 2130-B	Turbidity (NTU)		N/A	08/13/96	ND	NTU	0.1	ĩ

ND mg/L

μg/kg

None Detected

Milligrams/Liter

 $\mu g/L$ Micrograms/Liter mg/kg

Milligrams/Kilogram Micrograms/Kilogram DLR:

Detection Limit for the Purposes of Reporting

Exceptional sample matrices or interferences

may result in higher detection limits



BILL DUNN

Fresno City Water Division

1910 E. University Ave. Fresno, CA 93703-

Submission Date: 08/09/96 Submission Time: 14:59

Submission Number

Client Project ID

Purchase Order No.

: 9608000129

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled
1865	WELL SAMPLE STA.#138	DW	08/09/96	08:25
1866	Well Sample Sta.#120	DW	08/09/96	09:15
1867	Well Sample Sta.#121	DW	08/09/96	09:25
1868	Well Sample Sta.#79	DW	08/09/96	10:05
1869	Well Sample Sta.#91	DW	08/09/96	10:25
1870	Well Sample Sta.#302	DW	08/09/96	10:45
1871	Weil Sample Sta.#104	DW	08/09/96	11:05
1872	Well Sample Sta.#119	DW	08/09/96	11:50

## K A N A L Y T I C A L LABORATORIES

Certificate of Analysis

**BILL DUNN** 

Fresno City Water Division

1910 E. University Ave. Fresno, CA 93703Report Issue Date : 08/29/96

Sample Type : LIQUID

Submission Number

9608000129

Lab Number

Project Number

1868

Sample Description

Well Sample Sta.#79

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	08/21/96	08/22/96	130	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	08/21/96	08/22/96	150	mg/L	1	1
EPA 200.7 SM 2320-B SM 2510-B	Calcium (Ca) Carbonate (as CO3) Conductivity, Specific (EC)	08/23/96 08/21/96 08/21/96	08/23/96 08/22/96 08/22/96	29 ND 340	mg/L mg/L μmho/c	0.1 1 1	1 1 1
EPA 200.8 SM 2320-B EPA 200.8 SM 4500-H- SM 2130-B	Copper (Cu) Hydroxide (as OH) Lead (Pb) pH Turbidity (NTU)	08/25/96 08/21/96 08/25/96 08/21/96 N/A	08/26/96 08/22/96 08/26/96 08/22/96 08/13/96	ND ND ND 7.50 ND	mg/L mg/L mg/L STD NTU	0.010 1 0.001 -	1 1 1 1

ND mg/L None Detected

Milligrams/Liter  $\mu g/L$ 

mg/kg μg/kg

Micrograms/Liter Milligrams/Kilogram Micrograms/Kilogram DLR:

Detection Limit for the Purposes of Reporting

Exceptional sample matrices or interferences

may result in higher detection limits



Submission Date: 08/09/96

Submission Time: 14:59

**BILL DUNN** 

Fresno City Water Division

1910 E. University Ave. Fresno, CA 93703-

Submission Number

Client Project ID

Purchase Order No.

: 9608000129

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled	
1865	WELL SAMPLE STA.#138	DW	08/09/96	08:25	
1866	Weil Sample Sta.#120	DW	08/09/96	09:15	
1867	Well Sample Sta.#121	DW	08/09/96	09:25	
1868	Well Sample Sta.#79	DW	08/09/96	10:05	
1869	Weil Sample Sta.#91	DW	08/09/96	10:25	
1870	Weil Sample Sta.#302	DW	08/09/96	10:45	
1871	Weil Sample Sta.#104	DW	08/09/96	11:05	
1872	Weil Sample Sta.#119	DW	08/09/96	11:50	

## LABORATORIES

#### Certificate of Analysis

BILL DUNN

Fresno City Water Division 1910 E. University Ave.

Fresno, CA 93703-

9608000129

Lab Number

Project Number

Submission Number

Sample Description

1869

Well Sample Sta.#91

Report Issue Date: 08/29/96

Sample Type : LIQUID

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	08/21/96	08/22/96	100	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	08/21/96	08/22/96	130	mg/L	1	1
EPA 200.7	Calcium (Ca)	08/23/96	08/23/96	25	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)	08/21/96	08/22/96	ND	mg/L	1	1
SM 2510-B	Conductivity, Specific (EC)	08/21/96	08/22/96	270	μmho/c	1	î
EPA 200.8	Copper (Cu)	08/25/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)	08/21/96	08/22/96	ND	mg/L	1	1
EPA 200.8	Lead (Pb)	08/25/96	08/26/96	ND	mg/L	0.001	1
SM 4500-H-	pH	08/21/96	08/22/96	7.50	STD	0.001	î
SM 2130-B	Turbidity (NTU)	N/A	08/13/96	ND	NTU	0.1	î

ND mg/L None Detected

Milligrams/Liter

 $\mu g/L$ Micrograms/Liter mg/kg Milligrams/Kilogram Micrograms/Kilogram μg/kg

DLR:

Detection Limit for the Purposes of Reporting

Exceptional sample matrices or interferences

may result in higher detection limits



BILL DUNN

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Date: 08/09/96

Submission Time: 14:59

Submission Number

: 9608000129

Client Project ID

Purchase Order No.

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled
1865	WELL SAMPLE STA.#138 Well Sample Sta.#120 Well Sample Sta.#121 Well Sample Sta.#79 Well Sample Sta.#91 Well Sample Sta.#302 Well Sample Sta.#104 Well Sample Sta.#119	DW	08/09/96	08:25
1866		DW	08/09/96	09:15
1867		DW	08/09/96	09:25
1868		DW	08/09/96	10:05
1869		DW	08/09/96	10:25
1870		DW	08/09/96	10:45
1871		DW	08/09/96	11:05

### BSK ANALYTICAL LABORATORIES

#### Certificate of Analysis

Report Issue Date : 08/29/96

BILL DUNN

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Number

9608000129

Lab Number

1870

Project Number

:

Sample Description

Well Sample Sta.#302

Sample Type : LIQUID

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	08/21/96	08/22/96	110	mg/L	. 1	1
SM 2320-B	Bicarbonate (as HCO3)	08/21/96	08/22/96	140	mg/L	1	1
EPA 200.7	Calcium (Ca)	08/23/96	08/23/96	25	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)	08/21/96	08/22/96	ND	mg/L	1	1
SM 2510-B	Conductivity, Specific (EC)	08/21/96	08/22/96	280	μmho/c	î	1
EPA 200.8	Copper (Cu)	08/25/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)	08/21/96	08/22/96	ND	mg/L	1	î
EPA 200.8	Lead (Pb)	08/25/96	08/26/96	ND	mg/L	0.001	î
SM 4500-H-	pH	08/21/96	08/22/96	7.50	STD	-	1
SM 2130-B	Turbidity (NTU)	N/A	08/13/96	ND	NTU	0.1	î

ND mg/L μg/L

mg/kg μg/kg None Detected

Milligrams/Liter Micrograms/Liter

: Milligrams/Kilogram : Micrograms/Kilogram DLR:

Detection Limit for the Purposes of Reporting Exceptional sample matrices or interferences

may result in higher detection limits



BILL DUNN

Fresno City Water Division 1910 E. University Ave.

Fresno, CA 93703-

Submission Date: 08/09/96

Submission Time: 14:59

Submission Number

: 9608000129

Client Project ID

Purchase Order No.

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled
1865	WELL SAMPLE STA.#138	DW	08/09/96	08:25
1866	Well Sample Sta.#120	DW	08/09/96	09:15
1867	Well Sample Sta.#121	DW	08/09/96	09:25
1868	Well Sample Sta.#79	DW	08/09/96	10:05
1869	Weil Sample Sta.#91	DW	08/09/96	10:25
1870	Well Sample Sta.#302	DW	08/09/96	10:45
1871	Well Sample Sta.#104	DW	08/09/96	11:05
1872	Weil Sample Sta.#119	DW	08/09/96	11:50



#### Certificate of Analysis

Report Issue Date: 08/29/96

Sample Type : LIQUID

BILL DUNN

Fresno City Water Division 1910 E. University Ave.

Fresno, CA 93703-

Submission Number

: 9608000129

Lab Number

1871

Project Number Sample Description

Well Sample Sta.#104

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as	08/21/96	08/22/96	69	mg/L	1	1
SM 2320-B	CaCO3) Bicarbonate (as	08/21/96	08/22/96	85	mg/L	1	1
EPA 200.7 SM 2320-B SM 2510-B	HCO3) Calcium (Ca) Carbonate (as CO3) Conductivity,	08/23/96 08/21/96 08/21/96	08/23/96 08/22/96 08/22/96	13 ND 180	mg/L mg/L μmho/c	0.1 1 1	1 1 1
EPA 200.8 SM 2320-B EPA 200.8 SM 4500-H- SM 2130-B	Specific (EČ) Copper (Cu) Hydroxide (as OH) Lead (Pb) pH Turbidity (NTU)	08/25/96 08/21/96 08/25/96 08/21/96 N/A	08/26/96 08/22/96 08/26/96 08/22/96 08/13/96	ND ND ND 7.60 0.10	mg/L mg/L mg/L STD NTU	0.010 1 0.001 - 0.1	1 1 1 1

ND : None Detected
mg/L : Milligrams/Liter
μg/L : Micrograms/Liter
mg/kg : Milligrams/Kilogram

μg/kg

Micrograms/Kilogram

DLR : Detection Limit for the Purposes of Reporting

Exceptional sample matrices or interferences

may result in higher detection limits



BILL DUNN

Fresno City Water Division 1910 E. University Ave.

Fresno, CA 93703-

Submission Date: 08/09/96

Submission Time: 14:59

Submission Number

: 9608000129

Client Project ID

Purchase Order No.

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled	
1865	WELL SAMPLE STA.#138	DW	08/09/96	08:25	
1866	Well Sample Sta.#120	DW	08/09/96	09:15	
1867	Well Sample Sta.#121	DW	08/09/96	09:25	
1868	Well Sample Sta.#79	DW	08/09/96	10:05	
1869	Well Sample Sta.#91	$D\mathbf{w}$	08/09/96	10:25	
1870	Well Sample Sta.#302	$D\mathbf{w}$	08/09/96	10:45	
1871	Weil Sample Sta.#104	DW	08/09/96	11:05	
1872	Well Sample Sta.#119	DW	08/09/96	11:50	

#### Certificate of Analysis

Report Issue Date : 08/29/96

**BILL DUNN** 

Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

Submission Number

9608000129

Lab Number

1872

Project Number

Sample Description

Well Sample Sta.#119

Sample Type : LIQUID

Method	Analyte	Date Prep.	Date Anal.	Result	Units	DLR	Dil
SM 2320-B	Alkalinity (as CaCO3)	08/21/96	08/22/96	53	mg/L	1	1
SM 2320-B	Bicarbonate (as HCO3)	08/21/96	08/22/96	65	mg/L	1	1
EPA 200.7	Calcium (Ca)	08/23/96	08/23/96	11	mg/L	0.1	1
SM 2320-B	Carbonate (as CO3)	08/21/96	08/22/96	ND	mg/L	1	1
SM 2510-B	Conductivity, Specific (EC)	08/21/96	08/22/96	140	μmho/c	1	1
EPA 200.8	Copper (Cu)	08/25/96	08/26/96	ND	mg/L	0.010	1
SM 2320-B	Hydroxide (as OH)	08/21/96	08/22/96	ND	mg/L	1	1
EPA 200.8	Lead (Pb)	08/25/96	08/26/96	ND	mg/L	0.001	1
SM 4500-H-	pH	08/21/96	08/22/96	7.50	STD	0.001	1
SM 2130-B	Turbidity (NTU)	N/A	08/13/96	ND	NTU	0.1	î

ND None Detected mg/L Milligrams/Liter  $\mu g/L$ Micrograms/Liter mg/kg Milligrams/Kilogram

Micrograms/Kilogram

μg/kg

DLR: Detection Limit for the Purposes of Reporting Exceptional sample matrices or interferences

may result in higher detection limits



Submission Date: 08/09/96

Submission Time: 14:59

BILL DUNN

Fresno City Water Division

1910 E. University Ave.

Fresno, CA 93703-

Submission Number Client Project ID

Purchase Order No.

: 9608000129

Lab Number	Client Sample Desc.	Matrix	Date Sampled	Time Sampled
1865	WELL SAMPLE STA.#138	DW	08/09/96	08:25
1866	Weil Sample Sta.#120	DW	08/09/96	09:15
1867	Weil Sample Sta.#121	DW	08/09/96	09:25
1868	Well Sample Sta.#79	DW	08/09/96	10:05
1869	Well Sample Sta.#91	DW	08/09/96	10:25
1870	Well Sample Sta.#302	DW	08/09/96	10:45
1871	Well Sample Sta.#104	DW	08/09/96	11:05
1872	Well Sample Sta.#119	DW	08/09/96	11:50

#### DISTRIBUTION & WELL SAMPLE FIELD LOG

LOCATION: #86 (D-## = WELL SITE)
(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = EC

Date = 8-8-96 Time = 1:40 am

pH = 8.3\*

Temp. = 22.9 deg C

Conductivity = 0.33 mS/cm

LOCATION: # 150
(D-## = WELL SITE)
(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = E

Date = 8-8-96 Time = 1:30 pm

pH = 8.6 \*

Temp. =  $24 \cdot (a)$  dea C

Conductivity = 0.26 ms/cm

LOCATION: # 148 (D-## = WELL SITE)
(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = E

Date = 8-9-96 Time = 2.00

DH = 8.4 \*

Temp. = 25.2 deg C

Conductivity = 0.21 mS/cm

#### DISTRIBUTION & WELL SAMPLE FIELD LOG

LOCATION: # 133 W## = WELL SITE)

(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = FC

Date = 8-8-9 Time = 10:40 A m

pH = 8.3

Temp. = 26 deg C

Conductivity = 0.36 ms/cm

LOCATION: # 14 () (W)## = WELL SITE)
(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = EC

Date = 8-3-96 Time = 11:00 Am

DH = 8.27

Temp. =  $\frac{26.3}{3}$  deg C

Conductivity = 0.49 mS/cm

LOCATION: #83 (D-## = WELL SITE)
(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = FC

Date = 8-8-9 6

Time = 11:20 Am

DH = 8.47

Temp. = 23.6 deg C

Conductivity = 0.34 mS/cm

#### DISTRIBUTION & WELL SAMPLE FIELD LOG

LOCATION: STA #9) (W)## = WELL SITE)

(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials =

Date = 8-8-96 Time = 9:25 Am

pH = 8,5\*

Temp. =  $\frac{25}{deg}$  deg C

Conductivity = 0.36 mS/cm

LOCATION: STA # 154 (D-## = WELL SITE)
(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = £C.

Date = 8-8-96 Time = 9:35 Am

pH = 8. 5\*

Temp. = 22.6 deg C

Conductivity = 0.31 mS/cm

LOCATION: 169# 0## = WELL SITE)
(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials =

Date = 8-8-96 Time = 10:10 Am

pH = 8,7 \*

Temp. =  $\frac{26}{2}$  deg C

Conductivity = 0,24 mS/cm

#### DISTRIBUTION & WELL SAMPLE FIELD LOG

LOCATION: STA#94 W## = WELL SITE)

(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = EC

Date = 8-9-96 Time = 8:20 Am

pH = 8.5 T

Temp. = 22.1 deg C

Conductivity = 0, 23 ms/cm

LOCATION: STARLITY WH# = WELL SITE)
(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = EC

Date = 8 - 8 - 96 Time =  $8:55 \mu m$ 

DH = 8.5\*

Temp. = 22 deg C

Conductivity = 0.27 mS/cm

LOCATION: STA # 136 (D-## = WELL SITE)
(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = EC

Date = 8-8-96 Time = 9:10 Am

DH = 8.4 X

Temp. = 22.7 deg C

Conductivity = 0.35 ms/cm

#### DISTRIBUTION & WELL SAMPLE FIELD LOG

LOCATION: # ) q (W-## = WELL SITE)
(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = EC

Date = 8-9-96 Time = 10:05 Am

pH = 7.2

Temp. = 24 deg C

Conductivity = 0.32 ms/cm

LOCATION: #91 (D## = WELL SITE)
(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = FC

Date = 8 - 9 - 96 Time = 10.25

pH = 7.3

Temp. = 24.2 deg C

Conductivity = 0.28 mS/cm

LOCATION: #303 (D-## = WELL SITE)
(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = 1= C

Date = 8-9-96 Time = 10:45 Am

 $\Sigma \cdot \Gamma = Hq$ 

Temp. =  $\frac{25}{100}$  deg C

Conductivity = 0.27 ms/cm

#### DISTRIBUTION & WELL SAMPLE FIELD LOG

LOCATION: #138 W## = WELL SITE)

(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = FC

Date = 8-9-94 Time = 8:25 Am

pH = 8.0

Temp. =  $\frac{22.8}{}$  deg C

Conductivity = 0.26 ms/cm

LOCATION: # 120 (D-## = WELL SITE)
(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = EC

Date = 8.9-96 Time = 9.15 Am

pH = 1.6

Temp. = 21.6 deg C

Conductivity = 0.25 mS/cm

LOCATION: # 121 (D-## = WELL SITE)
(D-## = DISTRIBUTION SYSTEM SITE)

Samplers Initials = EC

Date = 8-9-96 Time = 9:25 Am

pH = 7.5

Temp. = 23,4 deg C

Conductivity = 0.27 ms/cm

#### DISTRIBUTION & WELL SAMPLE FIELD LOG

LOCATION: # 100 (W-## = WELL SITE)  (D-## = DISTRIBUTION SYSTEM SITE)
Samplers Initials = EC
Date = $8 - 9 - 96$ Time = $11.05 \text{ nm}$
pH = 1.4
Temp. = $26.6$ deg C
Conductivity = 0.18 mS/cm
LOCATION: # 119 (W-## = WELL SITE) (D-## = DISTRIBUTION SYSTEM SITE)
Samplers Initials = EC
Date = $\sqrt{-9-9b}$ Time = $\sqrt{1.50}$
pH =
Temp. = 25. 5 deg C
Conductivity = (2,13 mS/cm
LOCATION: (W-## = WELL SITE)  (D-## = DISTRIBUTION SYSTEM SITE)
Samplers Initials =
Date = Time =
pH =
Temp. = deg C
Conductivity = mS/cm



# Analyses Request / Chain of Custody

BSK Log Number:

1414 Stanislaus Street Fresno, C (209) 497-2888 FAX 485-6935	Fresno, CA 93706 485-6935 800 877-8310		Shaded areas for LAB use only	Requested Analyses	yses
Client Name FAMO		Report Attention: B.   DIAMA	Phone #	ev Ru	
Address		Project, Quote or PO#	PAX#	iit	
City, State, Zip		Сору to:	System#	1	
LAB use only Date	Time Sampled by:	Sample Description/Location	Gomment or Station Code	pH Ca Alk EC Lec	
2000		100 + 94		X	
8.8.76	0: 75 MM WELL 1	7 6		XXXX	
	1.10 mm 11.211 Samuel 6	415		XXXXX	
	S THAM MECTO	9.25 M WELLS THOMAS THOUSE STIP IF 97		X	
8-8-9h	9: 35 mm WELL SAMPLE	HMPLE STAILISY		XXXX	
	10:10 WELL SAMPLE	SAMME STATE ING		××××××××××××××××××××××××××××××××××××××	
8-8-94	10:40 well sample	STAH 133		XXXXX	
8-8-94	1:00 WELL.	WELL Samples STAH 140		XXXX	
8-8-96	11:20 WELL	JAMPLE STA # 83		XXXXX	
8-8-96	11:40 WELL	WELL SAMPLE STA#86		XXXX	
96-8-8	1:30 mell	SAMPLE STA# 150		XXXXX	
2-8-96	00:P			K X X X X	
Matrix Type: L-Liquid S-Solid G-Gas Type of Hazards Associated with Samples:	S.	Additional Services:  Rush Priority: []-2 Day []-5 Day	Additional Services Authorized by:	Paymeni Received wi	à Delivery  Amount: \$  Initial:
		OHIDA CHAIR OF CHANNAY [ ] CO Date Person 6.	(Signature)	-	
Signature	ature	Print Name	Company		5
Requested / Relinquished by:		ED CORRDIES	FCWD	8-8	8-8-96 2.50
Received / Relinquished by:					
Received / Relinquished by:					
Received / Relinquished by:			7	4,4	
A A A A MARINGARY NO. DRANGON		7	4		CI STRAIN STANSON



# Analyses Request / Chain of Custody

BSK Log Number:

1414 Stanislaus Street Fresno, CA 93706

414 Stanislaus Street Fresno, CA 93706 209) 497-2888 FAX 485-6935 800 877-8310	77-8310	Shaded areas for LAB use only	Requested Analyses	ises
Mont Name F ( , \w/ ,	Report Attention: BILL DU. M. M.	Phone #	,7 <u>y</u>	
ddress	Project, Quote or PO#	PAX#		
ity, State, Zip	Сору ю:			
Date Time	Sampled by:	Comment or Q	C F FLF E	
Control C/O C/O C/O C	)	Χ	XXXX	
21.0	- 1	×	^ X X X X	
(C:b)	1 14 115 alcan2	4	A X X X X	
10:05	WELL SAMIOLE STAIL FIG		<u> </u>	
5.4.01	SAMPLE	o 1-	^X	
54:0196-6-3	WELL Sumple STh 11 302	×		
7 8.9-96 11:05	WELL SAMPLE STAIL 104	-	XXXXX	
05:11 96-6-5 7	WELL SIMPLE STHILL 119		× × × × ×	
Matrix Type: L-Liquid S-Solid G-Gas Type of Hazards Associated with Samples:	Additional Services: es: Rush Priority: []-2 Day []-5 Day []-Formal Chain of Custody []-QC Data package	Additional Services Authorized by:	Payment Received with Delivery Date: Amount: J Check # Initial Receipt #	h Defivery  Amount: \$  Initial
Signature	Print Name	Сотрапу	D	
toquested / Relinquished by:	EP CONEMIES	F.CW.D	\$ · 6	99 31 3
Received / Relinquished by:				
Received / Relinquished by:				
Received / Relinquished by:			-	
received for Laboratory by	Maria Pan 1	D5K	× .	14 H30

## LABORATORIES

## Analyses Request / Chain of Custody

BSK Log Number:

1414 Stanislaus Street Fresi	Fresno, CA 93706		and AB nes only	Requested Analyses	yses
	935 800 877-8310		Entry is a second of the secon	— — — — —	
Client Name C . W	O	Report Attention: BILL DUNIN	Phone #		1
Address		Project, Quote or PO#	TOO TO	Opt	
City, State, Zip		Copy to:		4 C	
LAB are only	Sampled by:		Comment or	PHILIP	W 40
Sample Type # Sampled	Sampled	Sample Description/Location		()	
96-6-8 1	27:25 WELL.	Samole STA #138		\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
0,16-b-3	1.15	SAMIDIE 5+A# 120			
		SAMPLE STA # 12.1		XXXXX	
916-6-3	10:05 MELL	Sample STALL Da		XXXXX	
36-6-8	0: 2.5 WELL	SAMPLE STATE 91	a:		
16-6-8	13 WELL	Swimple STH # 302			
96-6-8	11: 05 WELL	SAMIPLE STALL 109	4		
36-6-3	1:50 MELL	Situation STHI 1119		7	
Matrix Type: L-Liquid S-Solid G-Gas Type of Hazards Associated with Samples:		Additional Services:  Rush Priority: []-2 Day []-5 Day  Rush Chain of Custody []-0C Data package	Additional Services Authorized by:	Psyment Received wi	da Delivery Amount: \$ Initials
		þ	(Signature)		Time
Signature	ture	Print Name	Company	F.	0 - 0 -
Requested / Relinquished by:		ED CORENIES	FIC WILD		T
Received / Relinquished by:					Š.
Received / Relinquished by:					
Received / Reimquished by:					

sosteed for Laboratory by:

#### APPENDIX D

#### RESIDENT SAMPLE SITE RESULTS



Jo 456482

CERTIFICATE OF ANALYSIS Cover Letter

September 13, 1996

Doug Kirk Fresno City Water Division 1910 E. University Ave. Fresno, CA 93703-

BSK Submission Number

: 9608000209

Date Received

: 08/15/96

Dear Doug Kirk,

BSK adheres to a quality assurance plan that has been approved by the State of California, Department of Health Services. Our ELAP certificate number is 1180.

This Certificate of Analysis has been prepared in response to your request for analytical services. Information was taken from your Chain-of-Custody or related correspondence. All sample handling and analytical procedures were completed within BSK Laboratories' standard acceptability criteria with any exceptions noted below.

If additional clarification of information contained within this certificate is needed, please contact our Client Service Department at 1-800-877-8310 or 209-497-2888.

Sincerely,

Laboratory Operations Supervisor

#### APPENDIX E

#### DISTRIBUTION SAMPLE LISTING FOR ENTIRE CITY